

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original): A method for producing an RE-containing alloy represented by formula

$R(T_{1-x}A_x)_{13-y}$ (wherein R represents at least one species selected from among La, Ce, Pr, Nd, Sm, Eu, Tb, Dy, Ho, Tm, Yb, Gd, and Lu; T represents at least one species selected from among Fe, Co, Ni, Mn, Pt, and Pd; and A represents at least one species selected from among Al, As, Si, Ga, Ge, Mn, Sn, and Sb ($0.05 \leq x \leq 0.2$; and $-1 \leq y \leq 1$)) comprising a melting step of melting alloy raw materials at 1,200 to 1,800°C; and a solidification step of rapidly quenching the molten metal produced through the above step, to thereby form the first RE-containing alloy, wherein the solidification step is performed at a cooling rate of 10^2 to 10^4 °C/second, as measured at least within a range of the temperature of the molten metal to 900°C.

2. (original): The method for producing an RE-containing alloy according to claim 1, wherein, in the melting step, the alloy raw material is melted in an inert gas atmosphere at 0.1 to 0.2 MPa.

3. (currently amended): A method for producing the first RE-containing alloy according to claim 1 represented by formula $R(T_{1-x}A_x)_{13-y}$ (wherein R represents at least one species selected from among La, Ce, Pr, Nd, Sm, Eu, Tb, Dy, Ho, Tm, Yb, Gd, and Lu; T represents at least one species selected from among Fe, Co, Ni, Mn, Pt, and Pd; and A represents

at least one species selected from among Al, As, Si, Ga, Ge, Mn, Sn, and Sb ($0.05 \leq x \leq 0.2$; and $-1 \leq y \leq 1$) comprising:

melting alloy raw materials at 1,200 to 1,800°C; and

solidifying the molten metal produced through the above melting step by rapidly quenching the molten metal, to thereby form the RE-containing alloy, wherein the solidifying is performed at a cooling rate of 10^2 to 10^4 °C/second, as measured at least within a range of the temperature of the molten metal to 900°C, and

wherein in the solidifying solidification step, the molten metal is rapid-quenched through any of strip casting, new-centrifugal casting with a tundish having a rotatable disk, and centrifugal casting.

4. (currently amended): A method for producing the RE-containing alloy according to claim 3, wherein the solidifying is performed by rapidly quenching the molten metal is rapidly quenched through strip casting in the solidification step, to obtain strips having a thickness of 0.1 to 2.0 mm.

5. (currently amended): A method for producing an RE-containing alloy represented by formula R(T_{1-x}A_y)_{13-y} (wherein R represents at least one species selected from among La, Ce, Pr, Nd, Sm, Eu, Tb, Dy, Ho, Tm, Yb, Gd, and Lu; T represents at least one species selected from among Fe, Co, Ni, Mn, Pt, and Pd; and A represents at least one species selected from among Al, As, Si, Ga, Ge, Mn, Sn, and Sb ($0.05 \leq x \leq 0.2$; and $-1 \leq y \leq 1$)) comprising:

melting alloy raw materials at 1,200 to 1,800°C;

solidifying the molten metal produced through the above melting step by rapidly quenching the molten metal, to thereby form an RE-containing alloy, wherein the solidifying is performed at a cooling rate of 10^2 to 10^4 °C/second, as measured at least within a range of the temperature of the molten metal to 900°C comprising a melting step and a solidification step for producing the RE-containing alloy according to claim 1, and

heat treating by a heat treatment step of heating at 900 to 1,200°C the RE-containing alloy that is produced through the solidifying solidification step, to thereby form an NaZn₁₃ phase.

6. (currently amended): The method for producing an RE-containing alloy according to claim 5, wherein the NaZn₁₃ phase is formed through the heat treating treatment step, which is performed for a period of from one minute to 200 hours.

7. (currently amended): The method for producing the RE-containing alloy according to claim 6, wherein the heat treating treatment is performed at a temperature of 1080°C to 1200°C and for a period of from 3 to 42 hours.

8. (original): An RE-containing alloy which is obtainable through the method of any one of claims 1 to 4.

9. (original): An RE-containing alloy, which is represented by the formula R(T_{1-x}A_x)_{13-y} (wherein R represents at least one species selected from among La, Ce, Pr, Nd, Sm, Eu, Tb, Dy,

Ho, Tm, Yb, Gd, and Lu; T represents at least one species selected from among Fe, Co, Ni, Mn, Pt, and Pd; and A represents at least one species selected from among Al, As, Si, Ga, Ge, Mn, Sn, and Sb ($0.05 \leq x \leq 0.2$; and $-1 \leq y \leq 1$), and which comprises an R-rich phase, having a relatively high rare earth metal (R) content, and an R-poor phase, having a relatively low rare earth metal (R) content, wherein the R-rich phase and the R-poor phase are dispersed at a phase spacing of 0.01 to 100 μm .

10. (original): An RE-containing alloy, which is represented by the formula $R(T_{1-x}A_x)_{13-y}$ (wherein R represents at least one species selected from among La, Ce, Pr, Nd, Sm, Eu, Tb, Dy, Ho, Tm, Yb, Gd, and Lu; T represents at least one species selected from among Fe, Co, Ni, Mn, Pt, and Pd; and A represents at least one species selected from among Al, As, Si, Ga, Ge, Mn, Sn, and Sb ($0.05 \leq x \leq 0.2$; and $-1 \leq y \leq 1$)), wherein the alloy has an NaZn_{13} phase content of at least 90 vol.%.

11. (original): A magnetostrictive device provided from the RE-containing alloy according to claim 10.

12. (original): A magnetic refrigerant provided from the RE-containing alloy according to claim 10.

13. (withdrawn): An RE-containing alloy, which is represented by a compositional formula of $R_yT_zA_a$ (wherein R represents at least one rare earth element selected from among La,

Ce, Pr, Nd, Sm, Eu, Tb, Dy, Ho, Tm, Yb, Gd, and Lu; T collectively represents transition metal elements containing at least Fe atoms, a portion of the Fe atoms being optionally substituted by at least one species selected from among Co, Ni, Mn, Pt, and Pd; A represents at least one element selected from among Al, As, Si, Ga, Ge, Mn, Sn, and Sb; and r, t, and a have the following relationships: $5.0 \text{ at.\%} \leq r \leq 6.8 \text{ at.\%}$, $73.8 \text{ at.\%} \leq t \leq 88.7 \text{ at.\%}$, and $4.6 \text{ at.\%} \leq a \leq 19.4 \text{ at.\%}$) and having an alloy microstructure containing an NaZn₁₃-type crystal structure in an amount of at least 85 mass% and α -Fe in an amount of 5-15 mass% inclusive.

14. (withdrawn): A method for producing an RE-containing alloy powder, comprising pulverizing, by mechanical means, the RE-containing alloy according to claim 13 to a powder having a mean particle size of 0.1 μm to 1.0 mm.

15. (withdrawn): An RE-containing alloy powder comprising an RE-containing alloy according to claim 13, which has a mean particle size of 0.1 μm to 1.0 mm.

16. (withdrawn): A magnetic refrigerant comprising the sintered RE-containing alloy powder according to claim 15, wherein the Curie temperature of the magnetic refrigerant has been controlled through absorption of hydrogen in the sintered RE-containing alloy.

17. (withdrawn): A method for producing a sintered RE-containing alloy, which comprises compacting an RE-containing alloy powder produced through a method for producing an RE-containing alloy powder according to claim 14, and sintering the compact.

18. (withdrawn): The method for producing a sintered RE-containing alloy according to claim 17, wherein the sintering is performed at 1,200°C to 1,400°C.

19. (withdrawn): The method for producing a sintered RE-containing alloy according to claim 17 or 18, wherein, after completion of sintering the RE-containing alloy powder, the sintered alloy is maintained in a hydrogen atmosphere at 200°C to 300°C, to thereby absorb hydrogen into the sintered alloy.

20. (withdrawn): A sintered RE-containing alloy, which is formed by compacting the RE-containing alloy powder according to claim 15, and sintering the compact.

21. (withdrawn): A magnetostrictive material comprising the sintered RE-containing alloy according to claim 20, wherein the Curie temperature of the magnetostrictive material has been controlled through absorption of hydrogen into the sintered RE-containing alloy.

22. (withdrawn): A magnetic refrigerant comprising the sintered RE-containing alloy as recited in claim 20, wherein the Curie temperature of the magnetic refrigerant has been controlled through absorption of hydrogen into the sintered RE-containing alloy.